**Balancing chemical equations—Using Matrices**

**Chemical Equation 1:**

\_\_\_**a**\_NH3 + \_**b**\_O2 🡺 \_c\_ NO + \_\_**d**\_\_H2O

**Systems of equations:**

N:

H:

O

**Matrix representation and solve:**

a = \_\_\_\_\_\_\_\_ b = \_\_\_\_\_\_ c = \_\_\_\_\_\_\_\_ d = \_\_\_\_\_\_\_\_\_

**Chemical Equation 2:**

\_\_**a**\_\_C6H5COOH + \_\_**b**\_\_ O2 🡺 \_\_**c**\_\_CO2 + \_\_**d**\_\_ H2O

**Systems of equations:**

C:

O:

H:

**Matrix representation and solve:**

a = \_\_\_\_\_\_ b = \_\_\_\_\_\_\_ c = \_\_\_\_\_\_\_\_ d = \_\_\_\_\_\_\_\_\_

**Chemical Equation 3:**

\_\_**a**\_KMnO4 + \_**\_b**\_HCl 🡺 \_\_**c**\_KCl + \_**\_d**\_MnCl2 + \_\_**e**\_Cl2 + \_\_**f**\_ H2O

**Systems of equations**

K:

Mn:

O:

H:

Cl:

**Matrix representation and solve:**